



# Valuing our Freshwaters

The importance of our rivers, lakes and wetlands



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Water in Wales is precious. Freshwaters are one of our greatest assets contributing in excess of £200 billion to the UK's economy each year. Good quality freshwaters are vital for maintaining drinking water supplies and to support agriculture, forestry, the food and drink industry, renewable energy, tourism and recreation.

Fishing in freshwater generates over £75m annually for the Welsh economy, walking generates over £630m, and a third of all outdoor visits by adults living in Wales are to inland waters. From the rivers within the south Wales valleys, to the lakes and tumbling streams of Gwynedd, freshwaters are at the heart of our landscape heritage and our cultural identity.

But, while some of Wales' worst pollution problems have been tackled, our rivers, lakes and wetlands remain under threat. Currently, 66% of Wales' rivers, lakes and wetlands do not meet 'Good Ecological Status' (GES) as required under the European Union's Water Framework Directive (WFD). The Welsh Government's current targets aim to establish GES for 44% of Wales' inland waters by 2015, with the remainder to achieve this status by 2027. In addition, only 24% of the Habitats Directive designated Special Areas of Conservation (SAC) were in "favourable status" in 2006. Many Welsh rivers risk failing to meet targets for spawning salmon and evidence suggests that sewin (sea trout) numbers have declined by around 50% in recent years. A major assessment of all Britain's ecosystems in 2011 showed how over 15% of Wales' very best rivers deteriorated in biological quality over the last 10 – 15 years.

The current deficit in quality means that Welsh freshwaters and the interdependent estuarine and marine waters, along with all their associated animals and plants, are not as healthy as they should be. This, set against a changing climate, makes it imperative we improve and restore our aquatic ecosystems to ensure resilience for our biodiversity, our wellbeing and our economy.

The consequences of projected climate change challenge the view that Wales has an all-year abundance of water; moreover, the likely increased scale and frequency of both drought – especially in summer – and flood could have a major impact on biodiversity and important habitats.

Our vision is for a future in which the people and government of Wales can take pride in freshwaters that are restored and maintained to become the healthiest in Europe.

This vision is timely given the decision taken by the Welsh Government to form a new environmental body, Natural Resources Wales, designed to deliver “*A Living Wales*” – an ecosystem approach to the sustainable management of the Welsh environment.

This document sets out the key issues, the need for action and the role that could be played by environmental non-governmental organisations (NGOs) in delivering our vision.

We bring a large network of volunteers and experience to help deliver these changes, but we need the Welsh Government to provide the political steer, resources and opportunities to enable us to help deliver Wales’ environmental objectives.

This document is produced by



on behalf of the following WEL member organisations



Also supported by



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# 1. Effective catchment management to restore the ecology of freshwaters throughout Wales

## Issue

Much effort has gone into the WFD River Basin Management Plans produced by Environment Agency Wales. There are major challenges in achieving the quality improvements of freshwaters in Wales that are specified in these plans. For this to happen there needs to be a broad involvement with stakeholders coupled with appropriate funding support.

## Actions

- Catchments should be systematically surveyed to identify causes of WFD failures and to ensure appropriate remedial actions can be developed and implemented to solve problems.
- Stakeholders should be directly involved in preparing Water Body Action Plans to promote collaborative working to achieve compliance with WFD standards.
- Welsh Government should implement the recommendations of the Lawton Review, as maintaining and improving the ability of species to move freely is essential to improve species resilience to climate change.
- Welsh Government should further stimulate and provide resources for local communities and environmental NGOs to co-deliver catchment improvements.



## Case study **The Source to Sea Living Landscape project**

The Source to Sea 'Living Landscape' has been developed through a partnership of Wildlife Trusts including Montgomeryshire. This unique initiative will establish a network of sites (1,400 acres) along the river Severn to demonstrate best practice land management for the benefit of biodiversity and society. The project aims to tackle issues of flood management at source through ditch blocking to slow down peak flow flood water. Riparian and floodplain habitats will be reinstated to rebuild connectivity, resilience and ecological function. New wetland, woodland and hedgerow habitat will be created to benefit wildlife and natural flood management. The principles of 'local stewardship' of natural and cultural resources by neighbours and local communities will be promoted through the project.

## 2. Conserve drinking water supplies and implement sustainable abstraction regimes

### Issue

Fewer than half of Welsh catchments have water available for new abstraction licensing without restriction at low flows (46%) and 16% of our catchments are over-licensed or over-abstracted, with risk to the environment. Climate change could mean water resources in Wales reduce by 10 – 15%, and summer river flows by as much as 40 – 60% by the 2050s. By the 2030s, due to climate change and population growth in south-east Wales, an additional supply of water equivalent to twice the current household consumption of Cardiff (50MI/d) may be needed. In Wales we use around 150 litres of water per person per day, but only a quarter of us pay by meter (and use 20% less). Wasting less water reduces carbon emissions and energy bills in the home and for the water industry.

### Actions

- Welsh Government should commit to a water meter in every home in Wales by 2020, supported by social tariffs that encourage water efficiency, and retrofitting programmes.
- Welsh Government should set an overall per capita consumption target of 120 litres per person per day by 2020.
- All energy efficiency programmes should include a water efficiency retrofit of taps, toilets and showers, and advice on behaviour change.
- Public sector buildings should require the most water efficient products, and rainwater and greywater re-use.
- All new housing should be water-neutral, with developers offsetting demand through efficiencies in schools, hospitals, businesses and homes in the same area.



- Sustainable abstraction regimes should be in place in all catchments so that there is no risk of environmental damage.
- Water Sensitive Urban Design should be used to plan new communities, including rainwater harvesting, sustainable drainage and water quality.

### Case study **Caerau and Brynglas Market project**

Groundwork Bridgend Neath and Port Talbot is working with the local community to develop a market garden on a site that previously contributed to a local drainage and flooding problem. A Sustainable Urban Drainage system (SUDs) and rainwater harvesting system will be incorporated to provide water for irrigation whilst also reducing surface water runoff and flooding. The project will provide the local community with a valuable local resource for producing fresh vegetables and fruit, whilst raising awareness of the value of water in the local community and enhancing biodiversity.

# 3. Support water-friendly farming

## Issue

Catchment surveys have shown that up to 60% of issues affecting WFD classification are caused by agriculture. Rivers and groundwaters are polluted with fertilisers and pesticides and riparian habitats and biodiversity are degraded by some agricultural practices which also cause soil erosion and sedimentation of river gravels. The right incentives and regulation framework must be put in place to ensure sustainable farming and healthy aquatic ecosystems.

## Actions

- The Common Agricultural Policy must move away from income support and towards a policy that supports sustainable environmental management. It must be based on the principle of public money paying for public goods and services.
- Welsh Government must ensure greater and more effective cross-compliance so agricultural grants and subsidies are targeted at delivering benefits to the water environment.
- Sources of farm pollution within each catchment need to be identified, their impact evaluated and farmers assisted to ensure the appropriate remedial action is implemented.
- Welsh Government should regularly report on the effectiveness of the current approach to tackling agricultural pollution (voluntary action and baseline regulation) and should set out clear guidance on when and how additional regulatory tools, such as Water Protection Zones, should be used if it is not delivering.
- Buffer zones should be established along watercourses to minimise risk of pollution from agriculture, to improve riparian habitats and to help Welsh rivers to adapt to a changing climate.



### Case study **The Clettwr catchment survey**

A survey of the Clettwr catchment in 2012, conducted by volunteers within the Teifi Rivers Trust, established a variety of impacts from farming. This included riparian habitat degradation due to overgrazing, organic pollution from inadequate waste management systems and sedimentation of river gravels caused by soil erosion. The Trust has worked with farmers and Environment Agency Wales to address these issues through schemes aimed at habitat improvement, reduction of soil erosion and improvements to waste management systems. As well as benefiting the river the project has helped farmers to improve the working farm environment.

# 4. Manage forestry to benefit freshwaters

## Issue

Well sited trees and woodland can reduce flooding, soil erosion and water pollution as well as acting as a carbon sink. Trees next to rivers and streams also reduce water temperature, which increases oxygen levels and the right trees in the right place help to improve biodiversity. Strong evidence to support the use of broadleaved woodland creation in appropriate locations is presented in the report published by the Forestry Commission and Environment Agency in July 2011 “*Woodland for Water: Woodland measures for meeting Water Framework Directive objectives*”. It is important that existing forestry plantations which cover about 12% of the land area of Wales are managed sustainably to benefit the freshwater environment. Bad forest plantation management can lead to degradation of riparian habitat, soil erosion, nutrient runoff, pollution from pesticides, exacerbation of surface water acidification and flooding.

## Actions

- Ensure that the effects of tree planting (including those as part of the Welsh Government’s 100,000 ha woodland creation target) are fully evaluated to maximise benefits whilst avoiding negative impacts.
- The Forest and Water Guidelines should be reviewed and strengthened to protect and benefit the water environment, including discontinuing forestry pesticide (cypermethrin) spraying and large scale clear felling.
- Any scheme receiving grant funding from the Welsh Government should have to follow the strengthened Forest and Water Guidelines.
- Better engagement between the forestry sector and NGOs should be promoted by Natural Resources Wales to assist collaborative working to improve the freshwater



environment. This should include active input by NGOs into Forestry Management Plans.

- Implement the recommendations of the report “*Woodland for Water*” to meet Water Framework Directive objectives.

### Case study **The Pontbren group**

The Pontbren Group comprises a group of farmers in the upper Severn valley who have worked together to develop a more sustainable way of farming. Restoration of woodland area and hedgerows by this group, supported by Coed Cymru, resulted in a reduction in surface flows after heavy rain. Collaborative investigations with a number of universities quantified the substantial benefits of planted trees in reducing surface water flows and flooding, as well as allowing banks and streambeds to consolidate and thus aiding the recovery of streamside vegetation. Stream widths have narrowed significantly and pools and riffles have developed on stretches which were previously shallow and uniform.

# 5. Assist recovery from acidification

## Issue

There have been improvements in some inland waters impacted by acidification as a result of a reduction in sulphur emissions to the atmosphere, though NO<sub>x</sub> continues to rise. However, many water bodies in Wales – perhaps half our total river length – are still severely impacted by acid episodes and will remain so for a considerable period into the future. Without intervention the ecology and fisheries of these catchments will remain seriously depleted.

## Actions

- Additional monitoring is required to identify catchments which would benefit from remediation measures.
- Continued support for the “acid waters” monitoring programme (established in 1985) and the Llyn Brianne project (established 1981), so that recovery processes can be evaluated.
- Monitoring of the effectiveness of different remediation techniques should be undertaken to properly evaluate their effects and potential for application elsewhere.
- On-going liming projects on severely impacted systems should continue for the benefit of the aquatic ecology and fisheries.



### Case study **upper Conwy Partnership Project**

Peat drainage as a result of the extensive drainage ditching (moorland gripping) in the Migneint area of the upper Conwy has led to peat drying, acidic “flushes” and highly variable flows; resulting in channel and gravel instability, washout of eggs and fry and downstream flooding issues.

Approximately 125km of ditches were blocked by peat dams and were re-profiled during 2011 through projects involving RSPB Cymru, National Trust and Afonydd Cymru.

Results show this work has reduced the risk of flash floods, as more rainfall is being retained within the bog.

The moderation of flash floods achieves multiple benefits by preventing the discharge of acid ‘spikes’, lessening the erosion damage to the river channel and reducing the scouring of spawning gravels.

# 6. Maximise the potential of urban waters for people and river wildlife

## Issue

The water quality of many urban rivers has improved in recent decades due to the reduction in heavy industry and more effective pollution control measures. However, urban rivers are still Wales' most severely damaged, and significant problems remain, such as habitat degradation, the spread of invasive weeds, litter, contaminated surface water runoff and incidents of malfunctioning storm water overflows. Reducing river borne litter and bacterial inputs is not only crucial to improving our freshwaters but also to the coastal environment and achieving good bathing beach standards. In addition, they seriously affect the visual quality which detracts from the community's enjoyment of the river environment. Some of the greatest benefits to the Welsh population from rivers will come from improvements in urban areas where people live.

## Actions

- Welsh Government should champion the use of Sustainable Urban Drainage systems (SUDs) to mitigate surface flooding and trap pollutants, including in Local Development Plans (LDPs) and all new development projects.
- Welsh Government should promote the benefits of retrofitting SUDs, particularly in sites with a high risk of contaminated runoff.
- A programme of projects should be established in urbanised catchments that are directed towards the control of invasive weeds, litter reduction and habitat and access improvements that would substantially increase the value of the river environment for local communities.
- The operating conditions of all combined sewage overflows should be reviewed and those most likely to cause damage identified, monitored and where required remedied.



### Case study **The Great Ebbw Challenge**

Two large scale events led by Keep Wales Tidy, as part of the Welsh Government's Tidy Towns initiative, were organised to remove as much litter and waste from the Ebbw Fach, Sirhowy and the Ebbw Fawr over a three day period. In total 200 volunteers took part in the Great Ebbw Challenge, with over 2.5 tonnes of waste and 190 bags of refuse being removed from the watercourse, riverbanks and surrounding areas.

# 7. Restore freshwater fisheries

## Issue

The latest assessment shows that all but one of Wales' rivers risk failing to meet conservation targets for salmon spawning in 2016. Also 60% of rivers have been assessed as being at risk in terms of the status of their sea trout stocks. Actions to reduce pollution and improve flows and habitat will contribute to the sustainable fisheries management by providing a high quality freshwater environment for fish but further actions are needed to prevent any further declines in the numbers of salmon and sea trout and to promote their recovery. Substantial funds are directed at stocking artificially reared juvenile salmon in many rivers but there are few monitoring programmes in place to assess their effectiveness.

## Actions

A decision based approach to addressing the critical factors responsible at the catchment level for either failures to meet salmon conservation targets or causing a depletion in sea trout stocks, should be implemented to determine the priorities for action. These should include:

- The more intelligent regulation of abstraction at key times to allow salmon and sea trout to migrate from the sea and spawn.
- Improving degraded riverine habitats and the easement of barriers to enable the free passage of migrating fish.
- Addressing polluting impacts such as sedimentation, acidification, pesticides and eutrophication.
- Reducing exploitation by a variety of means including increased catch and release, return of large sea trout, bag limits, carcass tagging schemes and limiting commercial catches through buy out or buy back schemes.
- The monitoring of salmon stocking programmes to assess their effectiveness.



### Case study **Improving the habitat for fish**

Extensive improvement schemes have been undertaken by Rivers Trusts. For example, the Wye and Usk Foundation has made about 33% of the Wye catchment available to spawning fish which was previously inaccessible due to weirs and other barriers. Afonydd Cymru through its European Fisheries Fund project has undertaken schemes within its member trust areas to make 126km of river available. This work together with the habitat improvement and water quality improvement schemes is helping to increase numbers of juvenile salmonids by improving the quantity and quality of juvenile habitats which will in turn result in a greater number of returning adult fish.

# 8. Promote integrated management of rivers and coastal water

## Issue

Rivers and coastal waters are connected; therefore negative impacts on one can have repercussions on the other. Litter inputs from rivers can end up on our beaches, bacterial runoff from catchments can cause failures in bathing water standards and excess nutrient inputs from our catchments can contribute to excessive growths of algae in coastal waters. Tidal power schemes in the Severn Estuary, such as a barrage or lagoons would have major ecological implications. As well as other impacts, such schemes would almost certainly result in the extinction of salmon and other migratory fish species in the Severn, Wye, Usk, Taff and other smaller rivers as a result of mortalities from fish passing through turbines or the obstruction to migration. They would also threaten birdlife in the estuary, which is of international importance.

## Actions

- There needs to be better integrated management of our freshwater and coastal environmental resources to improve their ecological condition.
- Natural Resources Wales should have responsibility for the environmental management of coastal areas as well as inland freshwaters including fishery regulation.
- Renewable energy is needed to secure energy supplies and reduce climate change; but options should be selected that do not cause an unacceptable impact on another element of the environment.



### Case study **Reducing bacterial input to rivers**

Research has demonstrated that preventing stock access to watercourses whilst providing alternative stock drinking facilities can have major benefits in reducing bacterial runoff to rivers. The fencing and buffer strips that are being created as a result of the habitat improvement work carried out by River Trusts in Wales will limit stock access to streams. This work could be combined with provision of alternative stock watering facilities to achieve major reductions in bacterial input to rivers and in turn help to achieve bathing water standards.

# 9. Promote partnerships for research, monitoring, understanding, well-being and heritage focussed on improving freshwaters

## Issue

It is essential that we have a good understanding of the factors that affect our aquatic environment and the reasons for declines in abundance and diversity of aquatic species. It is equally important to determine the effectiveness of the work that is undertaken to improve the environment. In this way best practice can be identified and disseminated for the benefit of future work. Much of the monitoring carried out by the environmental regulatory agencies is directed at the statutory requirements often dictated by European Directives. Limited resources are available to cover non statutory requirements. Environmental NGOs can play an important role in supplementing monitoring and investigative programmes.

## Actions

- Volunteers should be provided with professional support to increase the amount and quality of monitoring and investigative work.
- Links between the environmental NGOs and universities should be improved to take advantage of the expertise that could be made available.
- Funders should encourage environmental NGOs to include a monitoring and research element to environmental improvement projects.



## Case study **Riverfly monitoring**

The Riverfly Partnership ([www.riverflies.org](http://www.riverflies.org)), which operates through the Salmon & Trout Association, brings together anglers, conservationists, entomologists, scientists, water course managers and relevant statutory bodies to protect the water quality of our rivers through volunteer action and increase the knowledge of riverfly populations and conserve their habitats. Close cooperation between volunteers from the Rhymney Riverfly Monitoring Group, part of the Riverfly Partnership, and Environment Agency Wales led to Kingspan Off-Site Limited being convicted for polluting the river Rhymney. Through the monitoring process a reduction in biological quality was detected which pinpointed the source of the problem, caused by the pesticide permethrin entering the river from the company's premises.

# For further information visit

[www.waleslink.org](http://www.waleslink.org)

or contact Raoul Bhambral,

Advocacy Officer for

Wales Environment Link:

Email [raoul@waleslink.org](mailto:raoul@waleslink.org) Tel 02920 497 509

For further information on the organisations who support this document visit:

**Afonydd Cymru** [www.afonyddcymru.org](http://www.afonyddcymru.org)

**Amphibian and Reptile Conservation Trust** [www.arc-trust.org](http://www.arc-trust.org)

**Bat Conservation Trust** [www.bats.org.uk](http://www.bats.org.uk)

**Buglife** – The Invertebrate Conservation Trust  
<http://www.buglife.org.uk/>

**Butterfly Conservation Wales** [www.butterfly-conservation.org](http://www.butterfly-conservation.org)

**Campaign for the Protection of Rural Wales**  
[www.cprw.org.uk](http://www.cprw.org.uk)

**Carmarthenshire Rivers Trust**  
[www.theriverstrust.org/riverstrusts/carmarthenshire.html](http://www.theriverstrust.org/riverstrusts/carmarthenshire.html)

**Coed Cadw/Woodland Trust** [www.woodlandtrust.org.uk](http://www.woodlandtrust.org.uk)

**Keep Wales Tidy** [www.keepwalestidy.org](http://www.keepwalestidy.org)

**Plantlife Cymru** [www.plantlife.org.uk/wales](http://www.plantlife.org.uk/wales)

**Ramblers Cymru** [www.ramblers.org.uk/wales](http://www.ramblers.org.uk/wales)

**RSPB Cymru** [www.rspb.org.uk/cymru](http://www.rspb.org.uk/cymru)

**Salmon and Trout Association** [www.salmon-trout.org](http://www.salmon-trout.org)

**Snowdonia Society** [www.snowdonia-society.org.uk](http://www.snowdonia-society.org.uk)

**The Conservation Volunteers** [www.tcv.org.uk](http://www.tcv.org.uk)

**Vincent Wildlife Trust** [www.vwt.org.uk](http://www.vwt.org.uk)

**Wildlife Trusts Wales** [www.wildlifetrustswales.org](http://www.wildlifetrustswales.org)

**WWF Cymru Wales** [wales.wwf.org.uk/](http://wales.wwf.org.uk/)

**Ymddiriedolaeth Genedlaethol/National Trust**  
[www.nationaltrust.org.uk](http://www.nationaltrust.org.uk)

**Waterwise** [www.waterwise.co.uk](http://www.waterwise.co.uk)

**Wye and Usk Foundation** [www.wyeuskfoundation.org](http://www.wyeuskfoundation.org)

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